



Attorney Docket No.: 033082M194  
U.S. Serial No.: 10/775,145

**In the Drawings:**

Attached hereto are two replacement sheets containing corrected Figures 1 and 5, respectively. Figure 1 has been amended to delete reference numeral 32' therefrom. Figure 5 has been amended to include the legend "Prior Art" thereto. Applicants respectfully request that corrected Figures 1 and 5 replace original Figures 1 and 5.

**Remarks**

Claims 1-9 and 11-24 are pending herein. Claims 2 and 12 are withdrawn from consideration as being directed to a non-elected invention. By this Amendment, claim 10 has been canceled; claims 1, 3-5, 7, 11, 13-16 and 18 have been amended; and new claims 19-24 have been added. In addition, the specification and Figures 1 and 5 have been amended.

Claim 1 has been amended in part to recite that the substrate to be processed is placed on the first electrode. Support for this recitation can be found in the specification at, e.g., page 8, lines 28-30, and in Figure 1.

Claim 1 has further been amended to include the presence of --a tubular supporting part that supports the first electrode, the tubular supporting part forming a space together with the first electrode--. Support for this recitation can be found in the specification at, e.g., page 8, lines 30-34, and in Figure 1.

Claim 1 has also been amended in part to include the presence of --a high-frequency electric power supplying part arranged in the space, including a first high-frequency electric power source that outputs first high-frequency electric power having a first frequency--. Support for this recitation can be found in the specification at, e.g., page 9, lines 16-20.

In addition, claim 1 has been amended in part to recite that --the high-frequency electric power supplying part further includes: a first matching unit for impedance matching of the first frequency, and a transmission line that transmits the first high-frequency electric power from the first high-frequency electric power source to the first matching unit--. Support for this recitation can be found in the specification at, e.g., page 12, lines 17-27.

Claims 3-5 and 7 have been amended to be consistent with the changes to claim 1.

Claim 11 has been amended in part to recite that the high-frequency electric power supplying unit is arranged in a "space" and further arranged --for a plasma processing unit, the plasma processing unit including a processing container whose inner pressure can be reduced; a first electrode arranged in the processing container, for placing a substrate to be processed thereon; a process gas supplying unit that supplies a process gas into the processing container; and a tubular supporting part forming the "space" together with the first electrode; wherein the

high-frequency electric power transmitted from the first high-frequency electric power source to the first electrode is adapted to generate plasma in such a manner that the substrate to be processed can undergo a plasma process by means of the plasma--. Support for these recitations can be found in the specification at, e.g., page 3, lines 30-33; page 4, lines 5-9; and page 9, lines 16-20.

Claims 13-16 and 18 have been amended to be consistent with the changes to claim 11.

Support for new claim 19 can be found in the specification at, e.g., page 6, lines 20-23.

Support for new claim 20 can be found in the specification at, e.g., page 9, lines 25-29 and page 13, lines 18-21.

Support for new claim 21 can be found in the specification at, e.g., page 12, lines 15-17

Support for new claim 22 can be found in the specification at, e.g., page 14, lines 13-17 and page 15, line 29 through page 16, line 1.

Support for new claim 23 can be found in the specification at, e.g., page 11, lines 16-21 and page 12, lines 20-21.

Support for new claim 24 can be found in the specification at, e.g., page 12, lines 15-27.

The specification has been amended at page 13, line 28 to change the term "top" to the term --lowermost--. Support for this amendment can be found in the specification at, e.g., page 12, line 23 and in Figure 2.

Figures 1 and 5 have been corrected to overcome objections thereto.

In the Office Action, the drawings are objected to; claims 1, 3, 6-8, 11, 13, 17 and 18 are rejected under 35 U.S.C. §103(a) as being unpatentable over Applicants' Admitted Prior Art ("AAPA") in view of U.S. Patent No. 5,643,364 to Zhao et al. ("Zhao"); claims 4, 5 and 14-16 are rejected under §103(a) as being unpatentable over AAPA in view of Zhao as applied to claims 1 and 11 and further in view of U.S. Patent No. 6,887,339 to Goodman et al. ("Goodman") and U.S. Patent No. 6,703,080 to Reyzelman et al. ("Reyzelman"); and claims 9 and 10 are rejected under §103(a) as being unpatentable over AAPA in view of Zhao as applied to claim 8 and further in view of U.S. Patent No. 5,210,466 to Collins et al. ("Collins").

In view of the amendments and remarks herein, Applicants respectfully request reconsideration and withdrawal of the objection and rejection set forth in the Office Action.

## **I. Objection to the Drawings**

The drawings are objected to for the following reasons:

- (1) Figure 1 includes the reference numeral 32', which is not described in the specification;
- (2) Figure 5 should be designated by a legend such as --Prior Art--.

By this Amendment, Figure 1 has been amended to delete reference numeral 32' therefrom, and Figure 1 has been amended to add the legend --Prior Art thereto--. Applicants submit herewith replacement sheets for Figures 1 and 5. Accordingly, Applicants respectfully request withdrawal of this objection.

## **II. Rejection of Claims 1, 3, 6-8, 11, 13, 17 and 18**

Claims 1, 3, 6-8, 11, 13, 17 and 18 are rejected under §103(a) as being unpatentable over AAPA in view of Zhao.

Applicants respectfully submit that claims 1, 3, 6-8, 11, 13 and 17-23 would not have been obvious over AAPA in view of Zhao.

Claims 1 and 11 are independent. Claims 3, 6-8 and 19-21 depend directly or indirectly upon claim 1. Claims 13, 17, 18 and 22-24 depend directly or indirectly upon claim 11.

Claims 1 and 11 have been amended in part to recite that the high-frequency electric power supplying part is arranged in the "space" formed by the tubular supporting part and the first electrode. Because of this feature, the power loss in the RF system is reduced remarkably. This feature is not taught or suggested in AAPA or Zhao.

AAPA teaches that:

In order to make power loss on the load side as small as possible, the matching unit is usually arranged close to the processing container. On the other hand, *the high-frequency electric power source is usually installed in a power supply room or on a rack, which is away from a clean room including the processing container*, as an auxiliary machine. [emphasis added] (page 1, line 34 – page 2, line 1.

Zhao also does not disclose the presence of a high-frequency electric power supplying part in a space formed by a tubular supporting part and a first electrode. In Zhao, the high-frequency power source 12a and the fixed RF match circuit 30 are disposed outside of the plasma chamber 10 (see Figures 2 and 4).

Therefore, for at least the foregoing reason, Applicants respectfully submit that claims 1, 3, 6-8, 11, 13 and 17-23 would not have been obvious over AAPA in view of Zhao.

### **III. Rejection of Claims 4, 5 and 14-16**

Claims 4, 5 and 14-16 are rejected under §103(a) as being unpatentable over AAPA in view of Zhao as applied to claims 1 and 11 and further in view of Goodman and Reyzelman.

Applicants respectfully submit that claims 4, 5 and 14-16 would not have been obvious over AAPA in view of Zhao and further in view of Goodman and Reyzelmann.

Claims 4 and 5 depend directly or indirectly upon claim 1, and claims 14-16 depend directly or indirectly upon claim 11. Thus, claims 4, 5 and 14-16 also include the feature of the high-frequency electric power supplying part being arranged in the “space” formed by the tubular supporting part and the first electrode. As noted above, this feature is not taught or suggested in AAPA or Zhao. Likewise, this feature is not taught or suggested in either Goodman or Reyzelmann.

Therefore, for at least the foregoing reason, Applicants respectfully submit that claims 4, 5 and 14-16 would not have been obvious over AAPA in view of Zhao and further in view of Goodman and Reyzelmann.

### **IV. Rejection of Claims 9 and 10**

Claims 9 and 10 are rejected under §103(a) as being unpatentable over AAPA in view of Zhao as applied to claim 8 and further in view of Collins.

Claim 10 has been canceled. Claim 9 depends indirectly upon claim 1 and includes the features recited therein, including the feature of the high-frequency electric power supplying part being arranged in the “space” formed by the tubular supporting part and the first electrode. As stated above, neither AAPA nor Zhao teaches or suggests this feature. Collins also does not teach this feature. Thus, Applicants respectfully submit that, for at least the foregoing reason, claim 9 would not have been obvious over AAPA in view of Zhao and further in view of Collins.

**V. Conclusion**

In view of the amendments and remarks herein, Applicants respectfully request that the objection and rejections set forth in the Office Action be withdrawn and that claims 1, 3-9, 11 and 13-24 be allowed.

If any additional fees are due in connection with the filing of this paper, such as fees under 37 C.F.R. §§1.16 or 1.17, please charge the fees to Deposit Account 02-4300; Order No. 033082M194.

Respectfully submitted,

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Enclosures: (1) Replacement Sheets  
(2) Petition for Extension of Time  
(3) Fee Transmittal Form  
(4) Check for the sum of \$1170